PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

01/29/1998 GDUCKETT 00000074 08982157
01 FC:201                    395.00 OP
02 FC:203                    330.00 OP

PTO-1556
   (5/87)

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December 1, 1997

Assistant Commissioner of Patents and Trademarks
BOX PATENT APPLICATION
Washington, D.C.  20231

Re:   Inventor: Richard REISMAN
      Attorney Docket No.: RR3
      Title: COMPUTER-IMPLEMENTED TRANSPORT OF ELECTRONIC
      INFORMATION OBJECTS
      37 CFR 1.60 Continuation of: 08/251,724
      **Serial No.:  Unknown**
      **Filed:   Herewith**

SIR:.
We enclose herewith:

[X]  Patent Office 37 CFR 1.60 Continuation Application Transmittal Letter

[X]  Copy of Prior Patent Application 08/251,724 including Declaration form

[X]  Preliminary Amendment

[X]  Check for $725.00

[X]  Six (6) Sheets of Formal Drawings

[X]  Acknowledgment Postcard

The Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 08-0570.

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Respectfully submitted,

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Reg.   No. 26,275

## ABSTRACT

1    A novel electronic information transport component can be

2    incorporated in a wide range of electronic information

3    products, for example magazine collections, to automate the

4    mass distribution of updates, such as current issues, from a

5    remote server to a wide user base having a diversity of

6    computer stations.  Advantages of economy, immediacy and

7    ease of use are provided.  Extensions of the invention

8    permit automated electronic catalog shopping with order

9    placement and, optionally, order confirmation.  A server-

10   based update distribution service is also provided.

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**COMPUTER-IMPLEMENTED TRANSPORT OF ELECTRONIC
INFORMATION OBJECTS**

**TECHNICAL FIELD**

1   The present invention relates to computer-implemented

2   transport of electronic information objects.  More

3   specifically it relates to information transport software

4   which can be used for transporting information objects

5   between a remote server and any one of multiple,

6   uncoordinated intelligent computer workstations.  Still more

7   particularly, it provides a computer-implemented software

8   component that can be used to facilitate the distribution of

9   information objects from a remote source to a large number

10  of customers or subscribers.

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9   information objects from a remote source to a large number

10  of customers or subscribers.

## BACKGROUND

1

2 Electronic publication is an exploding industry in which

3 thousands of new products including magazines and

4 periodicals, software applications and utilities, video

5 games, business, legal and financial information and

6 databases, encyclopedias and dictionaries are purchased by

7 millions of customers. Commonly, such information products

8 are replicated in computer-readable form on magnetic or

9 optical storage diskettes and are box-packaged with printed

10 manuals for distribution to retail stores and direct mail

11 sales. These marketing practices are relatively expensive

12 and involve a significant time lag of at least days or weeks

13 to get a product into a consumer's hands once it is created.

14

15 Such costs and delays are generally acceptable for original,

16 high value products such as collections of publications or

17 software application, of which some examples are NEWSWEEK®

18 Interactive CD-ROM, or disks, which provides a searchable

19 audio-visual library of issues of NEWSWEEK magazine and

20 CINEMANIA® CD-ROM which provides reviews and other

21 information on newly released films. For time-sensitive,

22 low-value updates, for example, the latest issue of Newsweek

23 or last week's movie reviews, distribution in stored form,

24 on physical media, is slow and the cost may exceed the value

25 of the information in the product.

26

1    Thus, electronic transfer from a central computer server to

2    a subscriber's computer over common carriers or wide area

3    networks is an attractive proposition.  Similar

4    considerations apply to the distribution of software program

5    updates, although cost and frequency of issue are not such

6    serious constraints.  A problem faced in both situations is

7    that of incorporating the received material with the

8    original material so that a fully integrated publication,

9    information database or software program is obtained by the

10   user.

11

12   Another class of electronically distributed information

13   product comprises home shopping catalogues of mail order

14   products distributed on optical or other digital data

15   storage disks which may contain text, sound and images from

16   printed catalogues or uniquely created material, for example

17   software application demos.  To applicant's knowledge and

18   belief, available products lack any computer order placement

19   capability, requiring orders to be placed by voice call.

20

21   Communication between remote computers, not directly

22   interconnected by umbilical cable or a wired network, is

23   enabled by a wide range of hardware devices and software

24   drivers, utilities, applications and application modules.

25   Telephone modems that couple a computer with the telephone

26   network are familiar devices.  RF modems that couple

4

1   computers into wireless networks are less familiar but are

2   beginning to appear in consumer devices known broadly as

3   personal information communicators (PIC's) of which personal

4   digital assistants (PDA's) such as Apple Corp.'s NEWTON®

5   product are a first generation.  New kinds of digital

6   communications devices can be expected to emerge as digital

7   technology replaces analog transmission.

8

9   General-purpose, online, modem-accessed, electronic

10  information services, such as PRODIGY, COMPUSERVE and

11  AMERICA ONLINE (trademarks), and some Internet services,

12  provide wide access to timely information products from a

13  central server, but are limited and complex.  They provide

14  no means for the integration of downloaded information with

15  information products offered on disk or CD, and provide only

16  rudimentary facilities for local viewing and search of

17  downloaded files.

18

19  Such online information services provide their own user

20  interface which is generally unlike that of a disk or

21  CD-based information product, and can be customized very

22  little, if at all, by a publisher using the service for

23  product distribution.

24

25  Online services are oriented to extended online sessions

26  which require complex user interaction to navigate and find

1   desired information objects.  Initial setup and use is

2   rendered complex by requirements related to extended session

3   use of data networks and the frequent need to navigate

4   across the network, and through massive data collections, to

5   locate desired data items.  General-purpose online

6   information services do not provide a suitable medium for

7   electronic information publishers to distribute updates, and

8   the like, because of limited interface flexibility, because

9   a publisher cannot expect all their customer base to be

10  service subscribers, and because of cost and payment

11  difficulties.  Such services are centered on monolithic

12  processes intended for national use by millions of

13  subscribers which processes are not readily adaptable.

14

15  Online service charging mechanisms are also inflexible and

16  inappropriate for most individual information products,

17  requiring monthly subscription fees of $5-10 or more, plus

18  time charges for extended use, which are billed directly to

19  users, after a user sign-up and credit acceptance process.

20  Such cost mechanisms are too expensive and too complex for

21  distribution of many products such as magazine and other low

22  cost update products.  They do not presently permit a

23  publisher to build an access fee into a purchase price or a

24  product subscription.

25

26  Recent press announcements from corporations such as AT&T,

6

1   Lotus, Microsoft and MCI describe plans for new online

2   services providing what are called "groupware" services to

3   offer rich electronic mail and group collaboration

4   functions, primarily for business organizations.  Although

5   offering multiple electronic object transport operations

6   such services are believed to have complex setup procedures

7   and software requirements and complex message routing

8   features and protocols, and to lack interface flexibility.

9   Accordingly, they are not suitable for mass distribution of

10  low cost electronic information update products and cannot

11  achieve the objectives of the invention.

12

### Communications Products

14  Many software products exist that enable one computer to

15  communicate with another over a remote link such as a

16  telephone cable or the air waves, but none enables a vendor

17  substantially to automate common carrier mass distribution

18  of an electronic information product to a customer base

19  employing multiple heterogenous systems with indeterminate

20  hardware and software configurations.   Two examples of

21  popular such software products are Datastorm Technologies,

22  Inc.'s PROCOMM (trademark) and CENTRAL POINT COMMUTE

23  (trademark) from Central Point Software, Inc. which are

24  commonly used to provide a variety of functions, including

25  file transfers between, interactive sessions from, host-mode

26  services from, and remote computer management of, modem-

1   equipped personal computers wired into the telephone

2   network.

3

4

5   **<u>Counterpoint Publishing's Federal Register publications</u>**

6   Counterpoint Publishing, (Cambridge MA) in brochures

7   available to applicant in November 1993 offered electronic

8   information products entitled "Daily Federal Register" and

9   "CD Federal Register". "Daily Federal Register" includes

10   communications software and a high-speed modem. Apparently,

11   the communications software is a standard general purpose

12   communications package with dialing scripts that are

13   customized to the needs of the Federal Register products.

14   Accordingly, the cost of a communications package license

15   which may be as high as about $100 at retail must be

16   included with in the product cost. Also, Counterpoint

17   Publishing avoids the difficulties of supporting various

18   modems by providing its own own standard modem, with the

19   product, building in a cost (about $100-200) which renders

20   this approach quite unsuitable for mass-market distribution

21   of low cost electronic information update products. The

22   resulting product is not seamless either in its appearance

23   or its operation because the communications software is

24   separately invoked and used, and has its own disparate look

25   and feel to the user.

26

1 The "CD Federal Register" provides the Federal Register on

2 CD-ROM at weekly intervals for $1,950.00 and CD-ROM disks

3 are shipped to customers as they become available. Back

4 issues are $125 each. Updates are provided by shipping a

5 disk. The Federal Register is a high-value product intended

6 for specialist, business, academic and governmental users.

7 Distribution of updates on CD-ROM, as utilized by

8 Counterpoint Publishing, is not a suitable method for lower

9 value products such as a weekly news magazine, because of

10 the associated costs. Shipping delays are a further

11 drawback.

12

13 While the two product "CD Federal Register" and "Daily

14 Federal Register" might be used together, at an additive

15 cost, to provide a combination of archives on CD-ROM plus

16 daily updates obtained and stored until replaced by a new

17 CD-ROM, based on information available to the present

18 inventor it appears that the two products must be used

19 separately. Thus they must apparently be viewed, searched,

20 and managed as two or more separate collections, requiring

21 multiple steps to perform a complete search across both

22 collections, and requiring manual management and purging of

23 the current collection on hard disk by the user.

24

25 **Xcellenet's "REMOTEWARE"®**

26 Xcellenet Inc. in product brochures copyrighted 1992 and a

1 price list dated August 16, 1993, for a "REMOTEWARE"®

2 product line, offers a range of REMOTEWARE® software-only

3 products providing electronic information distribution to

4 and from remote nodes of a proprietary REMOTEWARE® computer

5 network intended for use within an organized, corporate or

6 institutional data processing or management information

7 system. The system is primarily server directed, rather

8 than user initiated and requires an expensive program

9 (priced at $220.00) to run at the user's node whereas the

10 present invention addresses consumer uses which will support

11 costs of no more than a few dollars per node.

12

13 Further, REMOTEWARE® is primarily intended to be used with

14 other REMOTEWARE® products at the node which other products

15 provide a range of user interface and data management

16 functions, at significant additional cost, each with their

17 own separate user interface presenting a standard

18 REMOTEWARE® look and feel. In addition, the nodes require a

19 sophisticated central support and operations function to be

20 provided, which may be difficult for an electronic

21 information publisher to accomplish and add unacceptable

22 expense.

23

24 REMOTEWARE® is overly elaborate to serve the simpler

25 objectives of the present invention. Designed for the

26 demanding needs of enterprise-wide data processing

1 communications, the client or node package provides many

2 functions such as background operation, ability to receive

3 calls from the server at any time, ability to work under

4 control of the central server to survey and update system

5 software and files and an ability to support interactive

6 sessions, which abilities are not needed to carry out the

7 simpler information transport operations desired by the

8 present invention. Such capabilities may be desirable in an

9 enterprise MIS environment, but are not appropriate to a

10 consumer or open commercial environment, and bring the

11 drawbacks of complexity, cost, and program size, which may

12 put undesirable operational constraints on the user (and

13 perhaps even compromise the user's privacy). REMOTEWARE® is

14 too costly and complex for mass distribution of updates to

15 periodicals, cannot be shipped invisibly with an electronic

16 information product and requires specialized server software

17 and operations support that would challenge all but the

18 largest and most technically sophisticated publishers.

19 Accordingly, REMOTEWARE® is unsuitable for widespread use as

20 an economical means of distributing updates for a variety of

21 electronic information products.

22

23 Although it has wider applications, a significant problem

24 addressed by the invention is the problem of economically

25 distributing updates of electronic information products to a

26 wide customer base that may number tens or hundreds of

1 thousands, and in some cases, millions of consumers. At the

2 date of this invention, such a customer base will normally

3 include an extensive variety of computers, operating systems

4 and communications devices, if the latter are present, all

5 of which may have their own protocols and configuration

6 requirements.

7

8 While an electronic information product vendor might

9 consider licensing or purchasing an existing commercial

10 communications product for distribution with their

11 publication product to enable remote, diskless updating, the

12 high cost of such a solution would generally be unacceptable

13 because a communication package includes a broad range of

14 functionalities not required for the vendor's particular

15 purpose, for example, remote keyboarding. Significantly, a

16 commercial communications package is not susceptible to

17 customization of its user interface and may have its own

18 configuration requirements and installation requirements,

19 with regard to directories, device drivers and the like,

20 which are incompatible with other vendor or user

21 requirements or are simply a nuisance to the user. Thus, a

22 commercial communications product in addition to its cost,

23 cannot be satisfactorily integrated with an information

24 product.

25

26 There is accordingly a need for computer-implementable

1 information transport software to enable simple, economical

2 and prompt mass distribution of electronic information

3 products.

4

5 **SUMMARY OF THE INVENTION**

6 This invention solves a problem. It solves the problem of

7 enabling simple, economical and prompt mass distribution of

8 electronic information products.

9

10 The invention solves this problem by providing a computer-

11 implemented information transport software module usable

12 with any of multiple electronic information products for

13 mass distribution of electronic information objects to users

14 of a diversity of uncoordinated communications-equipped

15 computer stations. The information transport software

16 module is readily customized to an individual information

17 product to have a user interface in said information product

18 for activation of automated transport of an information

19 object between a remote object source and a user's computer

20 station. The information transport module contains user

21 communications protocols specifying user station functions

22 of the automated object transport and the object source is

23 supplied with source communications protocols specifying

24 source functions of the automated object transport. The

25 source communications protocol is co-operative with the user

26 communications protocol and knows the characteristics of the

13

1    user communications protocol, so as to be able to effect the

2    information object transport in unattended mode after

3    initiation.

4

5    Preferably, for economy and simplicity, the information

6    transport component is supplied for incorporation in an

7    information product as a free-standing embeddable component

8    comprising only such functionality as is required for the

9    aforesaid information object transport operation as that

10   operation is described above and as further elaborated

11   herein.  In a preferred embodiment, by limiting available

12   functionality to predetermined transport operations, for

13   example to information object transport between the user's

14   address and one or more pre-specified remote addresses, or

15   to transport of a pre-specified information object or

16   objects, or by making both such limitations, a lean and

17   efficient information transporter product can be provided.

18   This enables an information product vendor to supply an

19   automated, or unattended, update or other information

20   transport facility to a mass market of computer users

21   without the complexity and expense of proprietary network or

22   communications software packages, or of the vendor

23   developing their own transport software.

24

25   In a local area network, users communicating across a common

26   medium such as ETHERNET (trademark), or TOKEN RING

14

1    (trademark) can enjoy the relatively expensive benefits of

2    coordination of traffic between users, and to and from

3    network services, which benefits are provided by a network

4    operating system such as LANTASTIC (trademark, Artisoft

5    Corp.) or NETWARE (trademark, Novell, Inc.).  In contrast, a

6    mass market of computer users lacks coordinating means for

7    the facilitation of remote communications between the users

8    and a would-be provider of services to those users.  The

9    inventive information transport component, or transporter,

10   efficiently fills that need.  While the invention might be

11   implemented for transport across a local area network, such

12   use would probably be incidental to the provision of other

13   services and may not be needed having regard to the

14   sophisticated functions usually provided by relatively much

15   more expensive local area network communication systems.

16

17   Typical communications equipment comprises a modem, but

18   other cards and devices enabling remote communication

19   between computers may be used, such as devices or means

20   permitting communication in a digital rather than analog

21   realm, for example, ISDN or ATM interfaces when they become

22   commercially viable.

23

24   Preferably, the user communications protocols specify

25   parameters such as a source address, which may be a common

26   carrier address, such as a telephone number, and object

1   parameters such as file name or names, file size, location

2   content and format are specified, as appropriate, in either

3   the user communications protocols or the source

4   communications protocols, or both.  Such object

5   specification can be listed in an object manifest stored at

6   the user's station, which preferably, for better control of

7   the transport operation, is sent to the remote object source

8   as a verifier.

9

10   By pre-specifying the desired transport functions to both

11   ends of the transport operation, the user and the object

12   source, a simplified, easy-to-use, automated transport

13   operation which conveys an information object in unattended

14   mode, after initiation, can be provided to any user.

15

16   The inventive information transport module provides an

17   information product vendor with simplicity, modularity and

18   generality enabling information fetch operations to be

19   easily executed by novice users, and permitting inclusion in

20   a wide range of information products with a minimum of

21   customization.  The invention is accordingly most suitable

22   for electronic publishers to employ to enable their

23   customers easily to update information products such, for

24   example, as periodical collections, patent collections or

25   software furnished on optical, magnetic or other storage

26   devices.

16

1  In a preferred embodiment of the invention, the information

2  object is pre-identified and integratable with the

3  information product to which the transport module is

4  customized to provide an augmented information product and

5  the information transport component comprises:

6        a)    a fetcher module configured to fetch said pre-

7              identified object from said object source

8              employing a pre-specified common carrier address

9              stored in said fetcher module;

10       b)    a communications manager to establish and manage

11             connection to said object source under control of

12             said fetcher module and with the assistance of

13             said user and source communications protocols; and

14       c)    a fetched object integrator to locate a fetched

15             object in a preset file area accessible to and

16             known to said containing information product;

17  wherein said object pre-identification, said common carrier

18  address and said preset file area specifications are stored

19  in said software component, whereby a workstation user of

20  said information product can automatically effect transport

21  and integration of a pre-identified object from said object

22  source to create an augmented information product at said

23  workstation.

24

25  In this embodiment, any user can, easily and with varying

26  degrees of automaticity, up to complete automation after

17

1  initiation of transport or upon arrival of a scheduled

2  transport time, obtain an update object and smoothly

3  integrate it with an original product or product shell.

4

5  In a highly automated embodiment a containing information

6  product, complete with transporter, is pre-coded with an

7  update, reporting, or other schedule and, referencing the

8  user's system clock, prompts the user for initiation of a

9  transport operation at a scheduled date after distribution

10  of the containing product, or fetches a schedule.   If the

11  user's system is shut down when the pre-scheduled date

12  arrives, such prompt may be made at the first system boot or

13  product use after that date.

14

15  The invention provides a closed-ended information transport

16  operation between an information object source and any

17  subscribing user, with no special commands or menu

18  selections, which functions efficiently and, within the

19  general parameters of an operating system's required

20  environment, operates independently of the user's system

21  configuration.   Information transport operations are carried

22  out automatically between communications modules that know

23  what to expect from each other, avoiding difficulties

24  arising from open-ended communications with a wide variety

25  of users employing a diversity of heterogenous systems.

26

18

1 In another aspect, the invention provides a method of

2 distributing predetermined electronic information objects

3 from a remote object source to users of a diversity of

4 uncoordinated modem-equipped computer stations, said method

5 comprising:

6       a)    supplying said users with an information transport

7            module containing user communications protocols

8            specifying user station functions of an automated

9            object transport operation; and

10      b)    supplying said remote object source with a source

11            information object and source communications

12            protocols specifying source functions of the

13            automated object transport operation, said source

14            communications protocol being co-operative with

15            the user communications protocol to effect said

16            information object transport operation;

17 whereby said transport operation can proceed automatically

18 after initiation at said user's station.

19

20 The inventive distribution software module and the original

21 information product are linked together to interact

22 seamlessly. It is possible for transport of the update to

23 proceed in a high level format facilitating integration of

24 the update object with the original product, and the

25 invention also provides methods and software for effecting

26 such integration.

1   A broad objective of the invention which can be fulfilled by

2   the methods and products disclosed herein is to allow a

3   computer user to fetch and use an information product

4   update, or even an original information product for which

5   they have previously received a transporter kit, with a

6   minimum of effort, and preferably with the impression that

7   the fetch function is an integral capability of the

8   information product itself, rather than being executed by a

9   separate or separable component.

10

11   Another objective is to enable information transport to be

12   easily effected across any of a selection of media or

13   carriers, desired by the containing information product

14   supplier. To this end the information transport component

15   can provide protocol selection means for selecting media for

16   real time communication between said user and said remote

17   object source employing a selection from a set of open-ended

18   network technologies and network providers, said

19   communication means being selectable without substantive

20   change to said containing information product.

21

22   In preferred embodiments, after setup of a containing

23   information product and a simple menu-selection activation

24   of a transport operation to occur immediately or at a

25   subsequent date, or time, and subject to the occurrence of

26   error conditions, the information transport component

1 effects the transport operation in an unattended manner, or

2 without user intervention, through the steps of modem

3 activation, dialing, network transit, handshaking with the

4 object source, file specification, file importation,

5 termination of the call and return of control to the

6 containing product.

7

8

*transport-related*

9 Preferably, additional∧steps such as sending back

10 verification of receipt of the fetched file to the object

11 source, inspection of the fetched object and comparison with

12 a pre-existing manifest for verification of object

13 parameters, and any necessary unpacking and decompression

14 are effected automatically, in an unattended manner without

15 user intervention.  For seamless use of the object, it is

16 also preferred that application file specifications, any

17 necessary location or relocation of an object file or files,

18 and any reindexing, index creation or other product

19 integration function that is required to enable the user to

20 utilize the fetched object harmoniously with the original

21 information product, be performed automatically in

22 unattended manner without user intervention, or with minimal

23 user confirmation that one or more steps of the procedure

24 should be executed.

25

26 Should errors be detected, if critical, they are reported to

1 the user, and possibly also to the object source. If a

2 detected error is potentially recoverable, the novel

3 information transport component preferably takes action,

4 without seeking user confirmation (although in some

5 embodiments confirmation could be requested), to correct the

6 error, for example by redialling a phone call a specified

7 number of times, or by re-running an object fetch operation.

8 Should a new fetch object still fail to meet manifest

9 specifications, deviations may be reported back to the

10 object source with the user being alerted and, possibly

11 recommended to make a phone call.

12

13 Preferably also, the information transport component or

14 "transporter" performs a containerized, standard transport

15 operation, which is transparent to any high-level formatting

16 of the transported information object, and standard in the

17 sense that the transport operation can be essentially

18 repeated for a wide variety of different information

19 objects.

20

21 Preferred embodiments of the information transport component

22 can pack or unpack, compress or decompress, and send to or

23 fetch files from specified locations. The transporter

24 allows the containing information product to be set up

25 automatically to effect high-level integration of indexes

26 and navigational structures by letting the containing

1     product have control when needed to import or export (and

2     encrypt or decrypt) objects.

3

4     Preferably, the transporter has no direct effect on the

5     content of the data object. Such transparency is

6     advantageous in avoiding interdependency between the

7     transporter and possible use of novel data structures,

8     encryption or copy-control methods, or the like, by the

9     containing product. For example the transporter need not

10    know (and possibly jeopardize) any encryption technique.

11

12    In preferred embodiments of the invention, the module is

13    self configuring and has the ability to scan the user's

14    system, and preferably identifies the user's modem, or other

15    system components or configuration software, and

16    automatically set protocols such as the baud rate, bits

17    parity and the like. Relevant auto-configuring capabilities

18    and software that may be employed in practicing the

19    invention are offered or promised by Intel Corporation in a

20    brochure entitled **"Intel Technology Briefing: Plug and Play"**

21    copyrighted 1994, the disclosure of which is hereby

22    incorporated herein by reference thereto.

23

24    Preferably, the novel electronic information transporter is

25    seamlessly embedded in the containing product so that an end

26    user is unaware that the transporter can exist separately

23

1    from the containing product.  However, it is a valuable

2    feature of the invention that the transporter be separable

3    from the containing product to be usable with other

4    containing products.

5

6    New or improved electronic information products are made

7    possible by the novel information transporter disclosed

8    herein, for example, CD-ROM-based products updated from

9    online services, updatable periodical magazine collections,

10   catalog-based computer shopping with order entry and

11   optionally, order confirmation.

12

13   **Recently contemplated CD-ROM products updatable from online**
14   **services**

15   A CD-ROM-based product with online service updatability

16   called **"MICROSOFT Complete Baseball"** (MICROSOFT is a

17   trademark) was announced by Microsoft Corporation apparently

18   on March 1, 1994, with a June 15, 1994 availability date.  A

19   product brochure received by the present inventor on April

20   26 describes a multimedia history of baseball which can be

21   updated with daily scores from an online service, by modem.

22   Nothing in the sales materials suggests any separable

23   information transport components marketable for use with

24   other information products.

25

26   In late April 1994, **CompuServe®** (trademark) online

27   information service announced plans for a CD-ROM information

1 product to be used in conjunction with its online service.

2 The CompuServe® CD-ROM information product online service is

3 usable only with that service, and requires users of its

4 online component to be CompuServe® member/subscribers, on

5 terms such as described above, which terms restrict the CD-

6 ROM product's marketability. The CD-ROM content and user

7 interface is limited to that provided by CompuServe®.

8 Accordingly, such a dedicated CD-ROM service is not a

9 satisfactory solution to independent publishers looking for

10 economical update means, because they will be limited to

11 whatever user interface and data management flexibility the

12 online vendor may provide which will substantially restrict

13 any creative look-and-feel identity the publisher may have

14 provided in their own product. Thus the CD-ROM product is

15 described by CompuServe® in the statement: "It is,

16 essentially, a new window on CompuServe..." This product

17 description does not suggest an ability to obtain updated

18 online information for integrated local, offline use with an

19 original information product stored on the CD-ROM, as is

20 provided by the present invention.

21

22

23 In addition to CD-ROM-based products, various new

24 information distribution methods and services are made

25 possible by embodiments of the present invention. The

26 object source can be a remote server equipped with a

1   cooperative communications module closely molded to work

2   effortlessly with the information transporter for

3   distributing objects to a wide base of users.   Such a remote

4   server can be linked to a vendor or gatewayed to other

5   information object sources or electronic publishers, and

6   exploit its smooth and efficient information transport

7   capabilities to act as a distribution point for such

8   vendors, sources or publishers.

9

10   Thus, the invention further comprises such a special-purpose

11   server designed for use with the novel information

12   transporter and the special-purpose server can be

13   established as a distribution service for publishers who

14   incorporate the information transporter in their products.

15   The invention also provides a method of operating a server

16   to provide such a software service and server-enabling

17   software.

18

19               **BRIEF DESCRIPTION OF THE DRAWINGS**

20   One way of carrying out the invention is described in detail

21   below with reference to drawings which illustrate only one

22   specific embodiment of the invention and in which:-

23

24   **Figure 1** is a schematic diagram of one embodiment of an

25          information transport software component according to

26          the invention installed in a computer workstation and

1    communicating with a complementary centrally located

2    server-resident software module for mass distribution

3    of digitized electronic information objects;

4

5    **Figure 2** is a flow block diagram of an information

6    transport operation performed by the software component

7    and module of the embodiment of Figure 1;

8

9    **Figure 3** is a schematic diagram of a server-based

10   electronic distribution service employing an inventive

11   information transport software component;

12

13   **Figure 4** is a further schematic diagram of the service

14   illustrated in Figure 3;

15

16   **Figure 5** is a schematic diagram of a prior art

17   communications product employed to transport an

18   information object between a user and a remote server;

19   and

20

21   **Figure 6** is a schematic diagram similar to Figure 5

22   showing, in a comparative manner, some of the benefits

23   that can flow to a user when an information transport

24   software component, such as that described with

25   reference to Figure 1, is used for a similar transport

26   operation.

1 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

2 Referring to Figure 1, the inventive software component is

3 schematically shown in operative mode installed at a user's

4 computer workstation.  The workstation is communications-

5 equipped for communication with remote services, for example

6 by modem, which services are also shown schematically.  Only

7 relevant software and hardware components of the system are

8 shown.

9

10 Relevant components at the workstation comprise operating

11 system services 10, a containing information product 12, an

12 information transport component or module 14, herein also

13 referenced as a "transporter" which may be a stand-alone

14 product or, in preferred embodiments is embedded or

15 contained in the containing information product 12.

16 Information transport component 14 provides a general

17 purpose facility for sending and fetching information

18 objects between an end user's computer (the client) and a

19 central server.  Information transport component 14 is not

20 customized to the containing information product 12, but is

21 intended to be used in conjunction with any of a wide range

22 of electronic information products.

23

24 Operating system services 10 provide capabilities for the

25 containing information product 12 and the information

26 transport component 14 to access a readable information

1    storage device 16 which may, for example, be an optical disk

2    drive such as a read-only CD-ROM where product information

3    17 is stored.  In addition, a read/write information storage

4    device 18, for example, a conventional hard disk is accessed

5    via the operating system services 10 for storage of a

6    fetched additional information object 26.

7

8    As necessary, different, or modified, information

9    transporter components 14 can be supplied for users of

10   different operating systems or system families, notably DOS

11   (available in several versions, for example from Microsoft

12   Corp, IBM Corporation, Novell, Inc.) Windows (trademark,

13   Microsoft Corp.), Apple Computer Corp.'s operating systems,

14   possibly IBM Corporation's OS/2 (trademark), and any

15   distinct operating systems developed for personal digital

16   assistants, pen-based computers and the like.

17

18   Information transport component 14 also uses operating

19   system services 10 for external communication with a

20   communications network 20 through which the information

21   transport component 14 can access a remote server 22, or

22   server-client network, supporting a data storage device 24

23   where desired additional information object 26 is located.

24

25   Communications network 20 can be any electronic distribution

26   system suitable for transporting information objects 26

1 including wired and wireless common carriers such as

2 telephone networks, cable television systems or networks and

3 mobile telecommunications or data communications networks

4 and extends also to emerging and future systems of providing

5 electronic communication between users of diversified

6 equipment. The term "common carrier" is used herein to

7 embrace all such data communication systems as will

8 reasonably meet the purposes of the invention. The term

9 "modem" is used herein to embrace any network interface

10 device enabling a user station to communicate on such a

11 communications network 20.

12

13 While the containing information product 12 can take many

14 different forms, as described herein, and as will also be

15 apparent to those skilled in the art, a preferred embodiment

16 is that of a periodically issuing publication or

17 publications, for example, a news magazine or a collection

18 of patents. Again, the additional information object 26

19 could be any information of interest to the user, having

20 some relevance to the containing information product 12, but

21 the invention and its unique capabilities enable the

22 additional information object 24 to be fully integrated with

23 the containing product 12 in a manner that can be automated

24 to be transparent to the user.

25

26 The inventive information transport component 14 is designed

1    to require a minimum of user input. A bare minimum will be a

2    user's ID which can be entered by the user in a product

3    setup and automatically accessed for information transport,

4    or could by pre-loaded by the vendor from data supplied by

5    the user at purchase.

6

7    A product ID is preferably pre-loaded into the containing

8    information product 12 by the information product vendor or

9    publisher to be available for use by the information

10    transport component 14. However, even this may not be

11    required. In an alternative embodiment, the product ID can

12    be automatically incorporated into the product in a product

13    replication process that permits individualized coding of

14    unique ID's. In most cases, a user-actuated menu selection

15    is provided in the containing information product 12 after

16    integration with the inventive information transport

17    component 14 to activate transport of an additional

18    information object, and preferably, selection of transport

19    activation drops down a menu of transport choices such as

20    "FETCH UPDATE", "FETCH CATALOG OF UPDATES", "SEND DATA" and

21    the like, each of which then runs automatically upon

22    selection.

23

24    Updating can also be totally automatic, and other than an

25    obviously desirable user notification, be completely

26    invisible to or transparent to the user, running in

1    background on their system, while the user's screen is

2    available for other processing such as running the

3    containing information product 12.  Where updates are made

4    available on a known schedule, a totally automated product

5    can be provided that fetches an update without any user

6    intervention, on the specified release date, or as soon

7    thereafter as the user's system, or the containing

8    information product 12, is activated.  In practice, most

9    users will probably prefer an opportunity to confirm that

10   the fetch transaction should proceed.  A preferred

11   embodiment monitors the user's system clock and alerts a

12   user to the arrival of an update release date and asks the

13   user to confirm that the system should seek and fetch the

14   scheduled update, if available.

15

16   Thus, the invention is particularly suitable for importing

17   updates of information or information processing products,

18   such as periodically issuing literature, or software

19   upgrades.  Accordingly, additional information object 24

20   preferably comprises updates which can be integrated with

21   the information product 12 to provide, for example, a

22   coherent body or continuous sequence of materials that can

23   be commonly searched and indexed preferably in a manner

24   giving the user the appearance of a common logical file

25   formed from physically distinct files.  The appearance of

26   integration can be achieved by searching new and then old

1    indexes in series and making the search and navigation logic

2    of the containing product smart enough to combine new and

3    old information.  For example a new object can have an index

4    file similar to that for the original information product

5    12.  A search engine can first search the new index, then

6    the old one, and then produce a combined set of results.

7    Preferably, the files are not actually merged or otherwise

8    combined as to do so could be unduly complex.

9

10   As shown in Figure 1, the containing information product 12

11   comprises a user interface 28 enabling the user to view,

12   search, excerpt and print or otherwise export or process

13   selected information items from product information 17.  The

14   user interface 28 provides standard information product

15   features, as conventionally supplied by the product

16   publisher, supplemented by appropriate fetch or send options

17   to activate the features of the inventive information

18   transport component 14.

19

20   Also shown in Figure 1 are a database management module 30

21   and a data structure definition module 32.  Database

22   management module 30 provides retrieval-oriented database

23   processing of the information product including indexed

24   searching and selective retrieval capabilities using one or

25   more index keys such as an issue or item number, or full

26   text searching, and may provide hypertext and hypermedia

1    linkages.   The data structure definition 32 provides the

2    database structure of relevant files as classified by field

3    or element, name, type, size and the like.   After successful

4    completion of a fetch operation, control is returned to

5    containing information product 12 to process the new

6    information in essentially the same manner as the original

7    information, or in any other manner for which it has been

8    equipped.

9

10   Major modules comprised in the inventive information

11   transport component 14 are a user interface 34, a

12   communications module 36 and fetch-send protocol 38.   In

13   addition, the information transport component 14 preferably

14   comprises its own built-in application programming

15   interfaces (APIs) such as a user interface API 40 and a

16   communications API 42, enabling the information transport

17   component 14's user interface and communications modules

18   respectively, readily to be incorporated with, or plugged

19   into a wide range of containing information products 14.

20   Such incorporation, in the currently best known embodiment

21   of the invention, is effected by software engineers familiar

22   with and having access to the containing information product

23   12, but future developments may enable the incorporation

24   process to be effected by skilled users.

25

26

1 References herein to an applications programming interface

2 (API) will be understood to embrace any program

3 interconnection technique which supports direct, seamless

4 interaction between one program and another, including

5 prodedural calls, object encapsulation, or emerging

6 techniques like Microsoft Corp.'s Object Linking and

7 Embedding (OLE) or Apple Computer's Open Doc.

8

9 API 40 is responsible for providing means for the user to

10 interact with the information transport functions of the

11 invention and interface as seen by the user and API 42 is

12 responsible for handling internal processes of

13 communications and data management.

14

15 The APIs 40 and 42 are intended to enable the information

16 transport component 14 to be used by a range of product

17 programs controlling a variety of information products and

18 to enable each API 40 and 42 to be free to exercise

19 flexibility and creativity in extending its associated user

20 interface 28, data management module 30 and database

21 structure 32 to fully address the provision of transport

22 functions for the purposes described herein.

23

24 API 42 operates on a transport function level involving high

25 level interactions between the containing product 12 or the

26 user (or the optional user interface) and the transporter 14

35

1 before and after communications while the detailed low-level

2 interactions between the transporter client and the server

3 during communications are handled by fetch-send protocol 38,

4 without involvement of the containing product 12 or the

5 user. "High level" is used to refer to a level at which

6 software interacts with a user, typically in simple, readily

7 comprehensible, function-oriented, graphic or everyday

8 language terms, while "low-level" refers to a level of

9 detailed procedural interaction with an operating system, or

10 device (modem, port etc.) in obscure program or machine

11 language terms incomprehensible to most users.

14 Fetch-send protocol 38 is, in the preferred embodiment

15 shown, a component of a novel client-server communications

16 procedure designed to manage the transaction-oriented

17 transmissions required to achieve satisfactory transport of

18 desired server stored information objects, and optionally,

19 central reporting of user information in a predetermined

20 format. Alternatively, one or more existing protocols could

21 be used.

22

23 Preferably, the API's 40 and 42 and the fetch-send protocol

24 38 are structured to use a manifest list to control the

25 exchange of information objects. The manifest list can be

26 provided in fetch-send protocol 38, and can be forwarded to

1    remote server 22 to provide better efficiency, error

2    control, and management of the operation.  Alternatively the

3    manifest list may remain resident at the user's station.

4    The manifest is valuable operating at the client station, at

5    the API level, to specify the actions required during a

6    transport session and can in one embodiment comprise a list

7    of send and fetch operations which are individually

8    controlled.

9

10   This software mechanism, employing novel communications

11   procedures and applications interfaces that reference an

12   object manifest, provides a new way for performing a wide

13   variety of information exchange functions in a simple,

14   standardized and economical manner.

15

16   **API Functions: 1) Product Setup**

17   In preferred embodiments, API 40 and API 42 include a

18   product setup routine of an application-specific

19   configuration, which is used by the publisher or product

20   developer, prior to publication, to establish seamless

21   compatibility between the containing information product 12

22   and the information transport component 14 for smooth

23   execution of desired transport functions.  A completion

24   status code is also specified.

25

26   The application-specific configuration posts user and

1   product ID information, as needed to process password or

2   other access code authentication and posts files

3   information, including designation of an application work

4   directory and a transporter work directory for performing

5   the transporter functions of information transport component

6   14.

7

8   Additionally, the application-specific configuration sets up

9   an appropriate decompression (or compression for send

10  objects) technique according to the expected format and

11  condition of fetched information objects 46, which

12  information is pre-coded into communications component 36.

13

14  The application-specific configuration established through

15  API 40 selects either a standard user interface, as

16  furnished with information transport component 14, or an

17  application-controlled user interface.  Control settings are

18  established for connection problem handling, disk error

19  handling, abort and server condition handling, access

20  denial, unavailability of information object files and any

21  other error situations which may occur during transport.

22

23  If desired, optional, advanced controls for scheduled

24  automatic calling can be included in the application-

25  specific configuration used in preparing the containing

26  information product 12 for publication.

1 Preparation of containing information product 12 and

2 incorporation of information transport component 14 therein,

3 with an application specific configuration, as described is

4 carried out prior to publication to build a customized,

5 ready to run version of the product with automated update

6 capability.

7

8 Communications API 42 establishes a product-specific

9 transport method choice list for selection of an appropriate

10 file transfer protocol as between direct dial, data network

11 dial, and other modes of transport. Communications

12 protocols specify necessary connection parameters such as

13 access number and network addressing or other routing

14 information. Optional script choices can provide for

15 different modes of transport.

16

17 These product-specific configurations and protocols enable

18 information transport component 14 to be packaged in

19 executable form with containing information product 12, with

20 all necessary product-specific components and settings,

21 including a standard user interface if selected, ready for

22 inclusion in the product package.

23

24 If desired, at the option of the information product

25 publisher, a standard user interface may be included. Such

26 an optional standard user interface can have all facilities

1  needed to select transportable objects from a predefined

2  list, perform all user setup functions, and invoke

3  information object transport.

4

5  Additional options are standard software that would allow

6  the user to search, view and print the transported objects

7  totally independently of the user interface and database

8  search components of the containing product.  Both such

9  options enable a publisher to exploit the inventive

10  transport product for efficiently and economically providing

11  updates without having to make changes to the publisher's

12  containing product, simply by configuring the transporter or

13  information transport component 14 and physically including

14  it, and the optional components, within the containing

15  product.

16

17  A standard viewer might handle only ASCII text, but it

18  preferably could provide for other useful formats such as

19  standard word processor, spreadsheet or database formats, or

20  multimedia formats such as video, sound and HTML (hypertext

21  markup language), a format becoming popular on the Internet.

22

23  **API Functions: 2) User Setup**

24  Compatibility with the user's system is effected by API 40

25  establishing a user-specific configuration, and creating or

26  updating the necessary control files.

40

1    Parameters established in the user-specific configuration

2    include a setup ID number to permit use of multiple setups,

3    for example, for different transport options, and a product

4    ID number.

5

6    The user-specific configuration posts user ID information

7    and a password or other access code authentication and posts

8    files information, including disk and drive designation for

9    work and data directories.   Autocall options and a

10   completion status code are also specified.

11

12   API 40 provides information for communications module 36,

13   specifying a user communications protocol for the user's

14   hardware, operating system, line configuration, and so on.

15   Thus, for a standard telephone connection, comm port, speed

16   (baud rate), interrupt settings, modem type and control

17   strings, dial prefix, dial 9, pulse or tone, call waiting

18   shut-off, and the like are specified, as appropriate.

19   Additionally, the user communications protocol includes

20   access number and connection parameters, optionally with

21   script selection for routing choices via data networks, and

22   so on.

23

24   The resultant user-specific configuration and communications

25   protocols generated through API 40 create a setup ready to

26   call and places it in the designated transporter work area.

1    A validation procedure checks entries and reports obvious

2    errors in parameter settings.

3

4    Preferably, multiple product ID setups are provided to

5    enable multiple information products to use the transporter

6    with an appropriate, compatible transporter version.

7    Preferably also, the user-specific configuration

8    accommodates shared use of the transporter work areas by

9    multiple information product applications resident on the

10   same user's system.

11

12   <u>Mechanism of fetch-send protocols 38 (user) and 44 (server)</u>

13   User fetch-send protocol 38 working in cooperation with

14   server fetch-send protocol 44 controls the desired

15   information object transport function, calling remote server

16   22 and exchanging data objects. It performs or supervises

17   communications between the user's system and remote server

18   22.

19

20   Communications module 36 uses a setup ID number specified

21   through API 40 or 42, selects which setup to use for a call,

22   calls remote server 22 using protocol 38, and in a preferred

23   embodiment, sends an object manifest comprising a send

24   object list, a fetch object list or both.  Such manifest is

25   created under control of user interface 28 from a pre-

26   existing set of choices supplied with the product or

42

1     obtained during previous update operations, or both.

2

3     Alternatively fetch-send protocol 38 may refer to a pre-

4     existing manifest list stored at the user's station, or may

5     be directed by remote server 22 to select one of multiple

6     pre-existing manifest lists stored at the user's station.

7     As another alternative, although it is convenient and

8     advantageous to transmit the manifest list to the server 22,

9     the relevant status and management information can simply be

10    used locally by communications module 36 and be integrated

11    into the individual fetch and send protocols.

12

13    A send object list comprises object action codes specifying

14    the type of server action required, if any, object names,

15    object sizes and response object size, if any.  A fetch

16    object list comprises object names, object sizes and an

17    object availability date.

18

19    A completed object manifest is employed to convey the status

20    of the transport operation and to provide for additional

21    information transport, if desired.  The completed object

22    manifest adds the following to the request object manifest:

23    send object additional information; object acceptance codes

24    returned by server 22; time of acceptance; and a response

25    object name, if called for by the object action code.

26

1   For a fetch operation, the completed object manifest adds

2   the following to the request object manifest: fetch object

3   additional information; a fetch confirmation or failure

4   code; the time of completion or failure and a revised

5   availability date if the requested fetch object was

6   unavailable.

7

8   If a scheduled update or polling option is present and

9   selected, a scheduling or polling indicator is included, and

10   a completion of processing or import function to call

11   through API 42 is specified.

12

13   A completion status code terminates the fetch or send

14   operation and returns control to the information product

15   application or the provided user interface.

16

17   **Information transport using communications module 36**

18   Communications module 36 employing the described fetch-send

19   mechanism comprised by cooperating protocols 38 and 44

20   performs the functions necessary to complete an information

21   transport operation, as described herein, under a variety of

22   circumstances, with tolerance for a common range of error

23   conditions, open drives, inadequate disk space, lost line

24   connections and the like, without losing control of the

25   user's system. Using correct, verified ID, naming and

26   routing information, the information transport operation

44

1    employing the inventive information transport component 14

2    is less error-prone than many computer users would be were

3    they effecting the transport operation with conventional

4    technology requiring them to enter routing and storage

5    information and the like, manually.

6

7    Communications module 36 verifies that all send objects are

8    as specified, that all fetch objects are scheduled to be

9    available, verifies that sufficient disk space is available

10   for all fetch objects and for compressed transmission copies

11   of all objects, and returns an error report if any of these

12   requirements is not fulfilled.

13

14   Communications module 36 performs communications, then

15   returns a completed object manifest, and logs all activity

16   in a transporter log file.  If an optional

17   scheduling/polling feature is selected, the communication is

18   deferred until the scheduled time.

19

20   These general objectives are achieved by carrying out the

21   following process steps after an application (or optionally

22   a transporter user interface) requests a transport function:

23        1)   Local validation of the request returning a

24             failure code if the request is improperly

25             specified.

26        2)   Compression of all send objects for transmission

45

1   and placing them in the designated transporter

2   work area.

3   3)  Connection attempts to remote server 22, returning

4   a failure code if necessary. Connections are made

5   via phone line or network. The system handshakes

6   and identifies the call to the server.

7   4)  Presentation of the object manifest, if utilized,

8   for validation and action.

9   5)  On receiving a go-ahead, transport of each send

10  object, logging each as sent, and receipt of

11  object acceptance codes from the server and logs

12  them, when received.

13  6)  Receipt of all fetch objects from the server,

14  placing them in the transporter work area, and

15  logs them as received. Fetch object names may be

16  precise, or generic or alias names may be used to

17  request a latest installment.

18  7)  Receipt and logging of a completed object manifest

19  from the server. (If receipt of response objects

20  is implied by the action codes, first receives a

21  revised object manifest, and fetches the response

22  objects, then receives the completed object

23  manifest.)

24  8)  Disconnection from server.

25  9)  Decompression and unpacking of all fetch objects

26  into application work area, and logs completion

46

1    status.

2    10)  Returns control to the application (or optional

3         transporter user interface).

4

5    The product checks the completion code, and completed object

6    manifest to deal with any error conditions.  The application

7    performs any required import processing on fetched objects

8    to integrate the data and indexes with prior data, as

9    desired, to enable seamless use.  If desired, import

10   processing can include, or offer as a user selection, file

11   maintenance functions relevant to the information product

12   including, for example, file purging to remove obsolete

13   information files and preserve the user's storage space.

14   Specifications of files to be deleted can be included with

15   the original product or with a fetch object.   In either

16   event the responsibility for accurate specification is

17   passed to the vendor, relieving the user of the risk of

18   making erroneous deletions and anxiety attendant thereon.

19   After such import processing the containing information

20   product (or the optional separate user interface) then

21   returns control to the user for use of the received data.

22

23   The foregoing steps are illustrated in the flow block

24   diagram of Figure 2.  When containing information product 12

25   issues an information transport call 50, setup filter 52

26   runs setup routine 54 if this is a first call and no

1    information transport setup was run on installation of

2    containing information product 12.  At block 56, an object

3    manifest is retrieved for pre-transport preparation at block

4    58.  After prepping, a call to server 22 is established at

5    block 60 and when the connection is made, and a handshake

6    performed, one or more objects is transported at block 62.

7

8    After completion of transport and receipt of a completion

9    manifest, server 22 is disconnected at block 64, received

10   objects are decompressed and unpacked at block 66 and stored

11   in a designated disk storage location at block 68.  Object

12   storage triggers containing information product 12's import

13   processing to assimilate the information update with the

14   original information product at block 70, following which a

15   completion report is issued at 72 and control is returned to

16   the containing information product 12 at 74.

17

18   **Optional schedule function**

19   An optional transport function module for scheduled or poll-

20   responsive information object transport can be provided to

21   defer the fetching of an update or to defer another

22   information transport operation to a specified later time,

23   or until called by the server.

24

25   The optional transport function schedules a request, waits,

26   then automatically performs the transport operation at the

1   scheduled time.  In polling mode, it activates (and, if

2   necessary, interrupts and then reactivates) the user

3   station's ability to receive calls.

4

5   Mechanics of the optional transport function include a

6   request for an ID number, an indicator for calling or

7   polling mode and a schedule iterating a call time, a retry

8   protocol, call activation and timing, along with an

9   authentication procedure for the server and a completion

10   status code.

11

12   **Client-Server communications protocol**

13   Communications between the information transport component

14   14, functioning as a client, and the server 22 follow a

15   predefined communications procedure having cooperative user

16   components comprising user fetch-send protocol 38 and server

17   fetch-send protocol 44.

18

19   Server-client intercommunication can be broken down into

20   five steps, a) login, b) manifest transmission, c) send

21   operation, d) fetch operation and e) logout, as described in

22   more detail below.

23

24   **a) login**

25   Login establishes a session with an authorized client.  A

26   handshake process between user protocol 38 and server

1   protocol 44 identifies the user's transporter client system

2   to remote server 22 by product ID and user ID, and a

3   password or other authentication code.  A failure reason

4   code is given to rejected clients.

5

6   **b) manifest transmission**

7   Preferably, via user protocol 38, the user system issues an

8   information object transport request manifest to server 22.

9   Server 22 verifies its ability to meet the request by

10  returning a manifest acknowledgment specifying which

11  elements will be processed and provides reason codes for

12  declined elements.  Alternatively, as stated previously,

13  manifest functions can be listed in individual send and

14  fetch protocols.

15

16  **c) send operation**

17  If the user system outputs a send object, through

18  information transport component 14 and protocol 38, server

19  22 receives and accepts the send objects and stores them,

20  identified by product ID and user ID.  Error control and

21  retry mechanisms are employed and successful receipt of the

22  send object is acknowledged and logged.

23

24  If the action code calls for a response object, the server

25  obtains necessary processing from a pre-designated external

26  source (corresponding to the product ID and action code) and

1 returns the response as a fetch object, called a response

2 object.

3

4 **d) fetch operation**

5 The server obtains requested fetch objects by product ID and

6 object name and forwards them to the transporter at the

7 user.  Error control and retry mechanisms are employed and

8 successful transmissions are acknowledged and logged.

9

10 **e) logout**

11 The server transmits the completed object manifest to the

12 transporter, confirms and logs receipt, and ends the

13 session.

14

15 **The inventive transporter compared with a conventional**
16 **communications product**

17
18 **Figures 5 and 6** illustrate schematically the simplicity and

19 ease- of-use benefits the invention provides **Figure 6** to a

20 user 100 in fetching an information object from a remote

21 server 22 as compared with the use of a conventional

22 communications product (**Figure 5**), such, for example, as

23 CENTRAL POINT COMMUTE (trademark) or PROCOM (trademark).

24

25 In the prior art embodiment of **Figure 5**, many operations

26 require active participation by the user who, for example,

27 must at least initiate any pre-transport preparation 104 of

28 the information object, such as checking the specifications,

1    checking work space available to store a fetched object and

2    conducting any other preliminary checks. The user has to

3    activate a communications product 102, specify a call route,

4    and after the call connection is established, specify the

5    objects and initiate a transport operation. Communications

6    product 102, operating in a cooperative manner with remote

7    server 22, will execute establish call connection 60 after

8    the call route (phone number) has been specified and will

9    execute transport objects 62 after the objects to be

10    transported are specified by the user. Disconnection 64 is

11    usually effected by a user executing a call termination

12    command, which if the user is inattentive, or inefficient,

13    may be delayed longer than necessary to complete the

14    transport operation, running up unnecessary line or air time

15    charges.

16

17    After completion of the transport operations, user 100 has

18    to deactivate the communications product 102 and then

19    initiate any required storing and processing of the fetched

20    product 106. While some of these steps may be automated via

21    one or more batch files, scripts or macros, a vendor of a

22    containing information product 12 has great difficulty in

23    furnishing such a batch file or macro for a mass market

24    distribution because of the different systems and

25    communications products encountered in a mass market, which

26    systems and products have a variety of different

1 specifications, performance characteristics and unique,

2 incompatible scripting languages.

3

4 Equally, while some more skilled users 100 might be able to

5 write their own batch files without undue difficulty to

6 automate some of these steps. Many users will lack the

7 ability or the inclination to do so. Also the effort would

8 not be justified for a single transport operation. Nor is

9 the result of such efforts likely to match the ease and

10 simplicity of the results achieved by the present invention

11 which enables even a first update to be obtained

12 effortlessly with the software running in unattended mode,

13 after initiation.

14

15 **Figure 6** clearly shows how the inventive information

16 transport component 14 relieves user 100 of many tedious

17 communication functions such as activating a communications

18 product, specifying a call route, specifying the objects to

19 be transported and deactivating the communications product.

20 In addition, preferred embodiments of the invention also

21 relieve the user of optional pre-transport preparation 104

22 and execution of store-and-process-fetched-product 106 if

23 these functions are appropriate to the containing

24 information product.

25

26 Referring to **Figure 6**, user 100 selects a transport

1   operation from a user interface screen in containing

2   information product 12, whereupon the latter calls

3   information transport component 14 to activate transport.

4   Information transport component 14 implements any necessary

5   pre-transport preparation 104 and then, employing its own

6   communications module 36, and server fetch-send protocol 44,

7   proceeds in unattended mode, without requiring user

8   intervention to establish call connection 60, to execute

9   transport object 62 and automatically perform a disconnect

10   64, as described herein.

11

12   Automatic transport control and disconnection is a useful

13   feature of the invention providing economy of line or air

14   time charges and reducing congestion on the communications

15   carrier.   Using conventional communications products,

16   (especially with online services) the duration of the

17   connection may be unnecessarily extended by the delays and

18   potential errors inherent in user control, resulting in

19   increased communications costs and failures.  The inventive

20   transporter 14 provides software control of the connection

21   duration, enabling it to be confined to a period sufficient

22   to effect said unattended object transfer, enhancing

23   efficient use of the communications medium.

24

25   Also as described, the operation can be monitored or

26   controlled by employing an object manifest and is

1 facilitated by the use of pre-specified addresses and

2 transport characteristics.  After satisfactorily completing

3 the transport, the information transport component 14

4 automatically deactivates and returns control to containing

5 information product 12, preferably with a satisfactory

6 completion report which containing information product 12

7 notifies to user 100 through the containing information

8 product 125 user interface.

9

10 If the transport object 62 was a product update, optionally

11 a store-and-process-of-fetched-object 106 is initiated by

12 information transport component 14 and execution of the

13 store and process operation may be passed to the containing

14 information product 12.  The user can now use the updated

15 product.

16

17 As **Figure 6** shows, when read, in comparison with **Figure 5**,

18 the invention enables a user 100 to be relieved of all

19 duties save for minimal selection and notification

20 functions, while no complex added functionality is demanded

21 of containing information product 12.  Optional store-and-

22 process-or-fetched-object 106 is contemplated as requiring

23 only minimal modification of existing containing information

24 product 12 functions while other more complex procedural and

25 detailed transport related functions are handled by the

26 information transport component 14.

1  Some non-limiting examples illustrative of practical

2  commercial and industrial applications of the invention will

3  now be described.

4

5  **Example 1:  A News Magazine Distributed on CD-ROM**

6  Some weekly news magazines offer subscriptions to a

7  quarterly CD-ROM which contains multimedia material plus a

8  searchable full- text database of the most recent quarter's

9  weekly magazine issues and enabling application software.

10  Newer issues are not provided until the next quarterly disc

11  is mailed.  Accordingly the CD-ROM electronic magazine

12  product steadily becomes out of date and its value lessens.

13

14  The invention incorporates an information transport

15  component 14 with a news magazine product stored on a CD-ROM

16  16, to enable a user to fetch an information object 46 in

17  the form of new issues (and their associated search indexes)

18  from a remote server 22, as they become available, for

19  example weekly.  The fetched updates are stored on a

20  consumer's computer hard disk storage device 24.  Because of

21  the size of rich content multimedia files, the updates are

22  limited to text material including full texts of interim

23  issues and associated files such as indexes.  Because it

24  knows the storage location of the updates, the next CD-ROM

25  issue can include, as an install option, or upon first

26  access, a request to delete the old now-outdated updates

56

1   from hard disk 24, creating space for new updates.

2

3   User interface 28 in conjunction with user interface 34

4   contains code providing a menu selection enabling a user to

5   activate the update fetch operation and then to provide

6   integrated or seamless access to the combined data,

7   searching both the hard disk storage device 24 and the CD,

8   using both sets of indexes, so that the contents are

9   viewable as a single collection, although an additional

10  independent searching/viewing function for the updates could

11  be provided, if desired.

12

13  A product setup routine adapts the information transport

14  component 14 to work with the news magazine CD-ROM's

15  existing software for creation of a user interface,

16  searching and viewing.  Communications options may be

17  limited to direct telephone dial only.  A simple user

18  interface addition controls a setup process allowing the

19  user to enter a unique user ID, provided with each copy of

20  the CD-ROM distribution disk, and to create predetermined

21  work areas on the user's hard disk.

22

23  A schedule of updates with names, dates, and files sizes is

24  provided in the containing news magazine product on the CD-

25  ROM and is accessed via user interface 28 in conjunction

26  with user interface 34 to create a fetch object manifest 48.

1    Optionally, user interface 28 in conjunction with user

2    interface 34 creates a send object manifest 48 to control

3    transport of user demographics for market analysis or for

4    renewals, or the like, in the opposite direction from the

5    user to the server, with the send operation being triggered

6    whenever the next transport operation is activated, or

7    optionally, ~~by allowing~~ by allowing the user to trigger it.

8

9    A fetched information object 46, such as an update, is

10   automatically decompressed and stored on hard disk storage

11   device 18 as additional information object 26 for

12   integration with the original CD-ROM product so that the

13   user can view both the update and the original issues, and

14   run searches across the entire collection.

15

16   Optionally, initial location of additional information

17   object 26 may be an application work area location on

18   storage device 18, and communications component 36 may be

19   pre-set to pass control via API 42 to database management

20   module 30 which will do further processing to integrate

21   additional objects in accordance with the existing database

22   structure 32 to provide a more complete level of integration

23   permitting, for example, viewing of combined menus,

24   nullification of obsoleted items, and cross-linking of

25   hypertext elements.

26

1    If a send object has been prepared and included in the

2    object manifest, such as a send object containing user

3    information entered during the install process, or

4    subscription request information obtained from the user, it

5    is sent to server 22 to be stored and identified by product

6    and user ID for appropriate action in due course.

7    Acknowledgement of receipt of the send object is noted by

8    communications component 36 and passed back to the user if

9    such provision is made in user interface 28.

10

11   Both the fetch and send operations are closed ended in the

12   sense of being operations that are pre-described in the

13   original information product and once triggered, can be

14   completed without human intervention of any kind.

15

16   To service the automated update facility running at the

17   user's workstation, remote server 22 is set up to accept

18   calls from valid user ID's, and is loaded with new issue

19   text and index files, in the form of update information

20   object 46, according to a publication schedule.

21

22      **Example 2:**   **Open-ended Fetch of a Supplementary News**
23                   **Magazine Object**

24   Open-ended access to supplemental information objects not

25   described in the original information product can be

26   obtained by providing in the original product means to fetch

27   a directory of added features. This can be used, for

1 example, by a news magazine publisher to provide special

2 news features on an unplanned basis, or each weekly issue

3 could be packaged with a directory of additional features

4 available. The user first specifies a fetch of the new

5 directory, or receives it along with a fetched update they

6 have specified from a user interface menu, and then views

7 the fetched additional features directory and initiates a

8 fetch of a selected additional item or items in a second

9 information object transport operation, using an information

10 object manifest built from the new features directory.

11

12 The original, containing product news magazine CD-ROM user

13 interface 28 preferably has provision for importing and

14 viewing any information objects listed on a completed fetch

15 manifest and delivered by the information transport

16 component 14 into the designated work areas. Alternatively,

17 a standard information transport component 14 user interface

18 34 can be used to provide this function in a less integrated

19 form.

20

21 **Example 3:    Retail Catalog on CD-ROM with Merchandise**
22                  **Order Entry at the Server**

23 Multimedia product catalogs with 800 ordering numbers are

24 now available on CD-ROM and also with pre-installed software

25 packages on new computer hard disks. In this example, the

26 multimedia (or text and graphic) product catalog is a read-

27 only information product 17 which can be furnished with an

1    information transport component 14 according to the

2    invention, to facilitate order placement from such

3    electronic product catalogs providing an easier order

4    placing process than has heretofore been possible.

5    Employing the inventive information transport component 14,

6    a catalog vendor can enable a customer to place the order

7    directly, via modem, without requiring a voice call and

8    ensuing verbal product identification, by pointing and

9    clicking a "Place Order" or "Mark for Order" button on the

10   user's computer screen.  The order is transported to remote

11   server 22 using the novel information transport component

12   14.  Preferably a verification routine is included,

13   requiring order confirmation with a user-supplied password,

14   and possibly keying of the total amount to prevent

15   unauthorized or inadvertent product ordering, for example by

16   children.

17

18   Order fulfillment is effected by processing of the

19   information in due course after receipt by the remote server

20   22 and any additional information required centrally is

21   collected during product setup and held locally for

22   transmission with an order.  For example, setup can capture

23   the user's charge card information, shipping address, and

24   the like and create a header for an electronic order form.

25

26   When the user clicks the "Mark Order" button, procedures

1  supplied with the user interface 28, as modified through

2  user interface API 40, add order item identification

3  information to an electronic order form.  When the user

4  clicks the "Place Order" button, user interface 28 triggers

5  a transport request to server 22, to include the order form

6  as a send information object 46.  Transport of the send

7  object, including the order form, from the user's station to

8  the server is executed employing an object manifest 48, as

9  described herein.

10

11  If not located at a vendor's or merchant's premises, server

12  22 can forward received electronic orders to the merchant

13  for fulfillment, at appropriate intervals, via a vendor link

14  50.

15

16  This simple, low cost mechanism for automated order

17  placement, can complement telephone ordering but lacks the

18  credit-checking and inventory status capabilities that are

19  frequently provided by phone.  However, such a catalog

20  application could allow the user to request the fetching of

21  an inventory and price update object for use prior to the

22  preparation of an order.

23

24  **Example 4:**    **Merchandise Order Processing and Confirmation**
25               **Retail Catalog on CD-ROM**

26  A powerful electronic merchandising tool can be provided by

27  providing the user with a full-function order generating

1   capability and employing transporter 14 to transmit a user -

2   created merchandise order, effortlessly and seamlessly, to a

3   remote order-processing server. To this end, server 22

4   should be interfaced to the necessary merchant processing

5   services for checking and reporting credit and inventory

6   status.

7

8   An additional valuable option enables the system to apply

9   pre-specified user instructions, previously obtained through

10   user interface 28, to determine whether out-of-stock items

11   are to be dropped, back-ordered, or substituted in color or

12   other aspect. This information can be added to the

13   electronic order form object, listed in object manifest 48

14   and become the subject of a further transport dialog between

15   the user's station and server 22. In this manner a

16   sophisticated purchase transaction is completed in a

17   substantially unattended manner (save for deciding about

18   back orders off-line), in as much as the customer does not

19   have to maintain a phone conversation, while fully achieving

20   the capabilities of telephone order placement. A further

21   user benefit can be obtained by the providing a permanent

22   record of the transaction (a stored electronic file) without

23   user intervention. This not possible with telephone

24   ordering.

25

26   This novel, automated, modem driven, order placement system

63

1   effectively shields a merchant from having to deal with the

2   problems of establishing communications with a mass of

3   unknown end user computer systems, while automating the

4   process and relieving the merchant of the costs of telephone

5   sales staff.  This aspect of the invention is valuable in

6   avoiding troublesome, support intensive, communications

7   which are subject to rapid technical change as new products

8   are absorbed into the marketplace. In contrast, the

9   merchant's special purpose vendor link 50 to the server 22,

10  can remain relatively stable, while the customer interface

11  at server 22, depending upon the sophistication and

12  universality of the API's 40 and 42, and also upon any

13  emergent communications standards, can be adapted to

14  accommodate a range of future products.

15

16  **Example 5:**   **Further Applications of the Invention:**
17                 **Locked information products**

18  As discussed in the "BACKGROUND OF THE INVENTION"

19  hereinabove, some vendors, for example Microsoft

20  Corporation, distribute information products in locked,

21  inaccessible form, accompanied by (user-accessible)

22  promotional information and demo versions.  The prospective

23  purchaser then calls an 800 number to order the product and

24  is given a code which is entered to unlock the item for use.

25  The inventive information transport component 14 and

26  cooperative server component 22, can be used to simplify

27  this process, and eliminate the voice call.

64

1    The information transport component 14 is used to place the

2    order and as a subsequent step concomitant with satisfaction

3    of the merchants purchase requirements (payment, etc) can,

4    employing a suitable line entry or entries in the object

5    manifest 48, fetch the access code, as an information object

6    46, in the same way as an order acknowledgment or other

7    information update.  The user interface and data management

8    components of the distribution CD, or original information

9    product, can be programmed automatically to use the code to

10   unlock the product.

11

12   Employing the novel, digital, modem-enabled communications

13   products of the invention, more sophisticated access codes

14   than are suitable for verbalizing to a caller, can be used,

15   and may include small programs or decompression utilities

16   (although these would better be stored in the locked

17   product), or customer-specific coding employing user-derived

18   information.  Thus, as a safeguard against fraud, being

19   equipped with specific user or user product information, the

20   access code can be a key or product uniquely matched to the

21   user's locked product copy.

22

23   **Computer Software Updates:** For distribution of updates to

24   software products, the original distribution version of the

25   software product can provide registered users with an

26   appropriate ID code and update schedule.  Should the

65

1   revision be delayed, a revised schedule can be fetched.

2

3   **Tax or other governmental filings and exchanges:** An example

4   of the generality of the inventive information transport

5   system for sending and fetching well-defined information

6   objects of many kinds is in the filing of tax returns.  A

7   send information object can be created and manifested to

8   submit electronic tax filings to the IRS, as described

9   above, for electronic product order forms.  A fetch object

10   can be created to obtain updated tax forms and the program

11   logic relating to them, and to get information on new

12   regulations.  Analogous uses will be apparent to those

13   skilled in the relevant arts of, for example, financial

14   planning and portfolio management systems, to obtain current

15   statistics, place orders, and the like.

16

17   **Packaging of Transporter with User Interface/Database Search**
18   **Software Facilities**

19   In a modified embodiment, the inventive information

20   transport component 14 is integrated with a general purpose

21   user interface/database search (UI/DB) software package and

22   tools.  Such packages and tools, sometimes referred to as

23   "authoring packages", are now used to produce CD-ROM's and

24   similar information products.  Thus a single UI/DB product

25   may contain the inventive information transport component

26   14, and be supplied to publishers to be used to develop a

27   family or diversity of information products, as a standard

1    tool box.

2

3    A combination of the inventive information transporter

4    product with such UI/DB products could facilitate

5    development of applications by allowing much of the work of

6    integrating a containing product's user interface 28 and

7    database functions 30 and 32 (which could be controlled

8    through the UI/DB product) with the inventive information

9    transport component 14 to be performed once, in advance, by

10   a UI/DB software vendor's skilled specialists, for use in a

11   diverse range of products using that vendor's software.

12   Such integrated offering would be advantageous to both the

13   software vendor (by enriching its offering) and to the

14   software vendor's publisher-customers by facilitating the

15   desired function.

16

17   **Electronic product distribution service**

18   In a valuable application of the novel electronic

19   information transport products of the invention, remote

20   server 22 can be operated to provide an electronic data

21   product distribution service for multiple containing

22   information products 12, each equipped with an information

23   transport component 14, the whole facility providing a

24   complete network distribution service, including network,

25   technical and end-user support.  Provision of such a

26   distribution service is greatly facilitated by the novel

67

1 transporter 14, described herein, the use of which for each

2 vended product greatly simplifies the problems of handling

3 updates to multiple products. However, such a novel service

4 could also be operated with conventional software

5 communications products by relying upon users of each to

6 execute an appropriate sequence of menu selection and

7 command line instructions to obtain an update by modem via

8 their own pre-existing communications software. Similarly,

9 While special advantages of seamless user adoption and

10 integration into an original product accrue from the use of

11 the inventive transporter to distribute product updates,

12 such a distribution service can be used with advantage to

13 distribute any type of electronic information product.

14

15 For many publishers (and for providers of UI/DB authoring

16 software) the task of operating a publicly available server

17 22, and of supplying associated technical support to a wide

18 base of customers using a diversity of communications

19 products, even with the simplification benefits provided by

20 the inventive transport product, is a task requiring

21 specialized skills and staffing that a publisher, even one

22 experienced in electronic publishing, will generally lack.

23 Such a specialist capability is intimidating to provide and

24 difficult to cost-justify for the limited number of

25 information products that one publisher can supply.

26

1    By providing a new turnkey service or service bureau a

2    specializing, skilled vendor would enable the publisher to

3    avoid such burden.   A provider of such a novel service can

4    spread the costs of such operational activities and skilled

5    staff across a large number of publishers and information

6    products, achieving economies of scale and specialization.

7

8    The inventive information transport products extend to

9    software implemented at server 22, or at one or more clients

10   or satellite servers, of a network served by server 22, to

11   provide the server-location functions of such an electronic

12   product distribution service.   Such distribution software

13   can be separately marketed to publishers or UI/DB vendors

14   who wish to operate such a service.

15

16   **Gatewayed, "open" server**

17   Example 4, above, shows how information transporter 14, as

18   well as server 22 can remain simple yet provide a highly

19   general and extensible service.   In that example, server 22

20   provides the functionality of a general-purpose transaction

21   gateway or interface to an external function processor.   In

22   this particular case, the external function processor

23   gatewayed by server 22 via vendor link 50, is the merchant's

24   order processing system, which receives the order,

25   determines its disposition, and responds with order status

26   information which is relayed back to server 22 for return to

1    the customer as a response object in accord with protocols

2    38 and 44.  The user need not be aware of such complexities,

3    nor do the client transport components 14 of the inventive

4    product need to be aware of, or provide information for

5    remote routing via vendor link 50.  Only the server 22 needs

6    this information, and server 22 needs only to know that send

7    objects with names that fall within a specified class for a

8    specified product ID, must be forwarded to a specified

9    external processor, and that the corresponding responses

10   from that processor must be routed back to an originating

11   client as response objects.  Thus the inventive information

12   transport component 14, by virtue of its simplicity has

13   general applicability and many uses, as described herein and

14   as will further be apparent to those skilled in the art.

15

16   In implementing an ordering service using the inventive

17   information transport component 14, order and response

18   objects are preferably formatted by the containing

19   information product 12 to be consistent with existing or

20   future electronic data interchange (EDI) standards which

21   define protocols and formats for data interchange between

22   customers and vendors.  The information transport component

23   14 and the server protocol 44 provide the low-level EDI

24   transport functions and are independent of object content

25   defined by higher layers of the EDI protocol.  Preferably,

26   the server has added routing layer information to move

1 objects to and from the external processor.

2

3 To provide a suitable EDI-compatible function, server 22 can

4 be programmed with such higher layer EDI routing data for

5 its exchanges with the merchant's external processor.

6 Employing such a gatewayed system, a single EDI network

7 connection can be used to connect the server 22 to a large

8 number of different merchant processors anywhere in the

9 world, across wide area networks and links between same, for

10 example Internet.

11

12 This concept of an "open" server, providing a gatewayed

13 pathway for information objects to travel between a wide

14 base of users and one or more remote vendors or other object

15 sources is greatly facilitated, or enabled, by employment of

16 the inventive transporter 14 which effectively provides a

17 protocol translation function enabling a simple information

18 transport service to be offered which is easy and economical

19 to use, both for the end user and the vendor or information

20 supplier.  Such a transport service compares favorably, for

21 its intended information transport purposes with broader

22 function and more complex of full online services, such as

23 COMPUSERVE (trademark), and the like, described hereinabove.

24

25 **Further embodiments with broadcast, subscription delivery**
26 **and on-demand capabilities**

27

1 **Receipt of broadcast data:** As an alternative to modem-based

2 wireline or wireless calling to a server and requesting data

3 objects, the information transporter system of this

4 invention can be beneficially employed in a broadcast

5 information distribution system wherein data information

6 objects are contained within a broadcast data stream with

7 recipient communications devices tuned to identify and

8 receive from the broadcast specific data elements to which

9 they are entitled.

10
11 Broadcasting can be airwave broadcasting via satellite, FM,

12 or TV subchannels in the manner, for example, used by

13 Mainstream Data Ltd. for the broadcast of news wires.

14 Alternatively, the broadcast data stream may be cable or

15 line transmitted, for example, over cable television

16 systems. Minor extensions to API's 40 and 42 could

17 accommodate such a facility. A modified setup function

18 could alert a user's receiving communications device to

19 watch for receipt of data objects identified as relating to

20 the original or containing information product, and to

21 capture and hold identified objects in temporary storage. A

22 schedule transport function can then be set to fetch the

23 received data objects from temporary storage and prepare

24 them for use.

25

26 **Subscription delivery:** Although the invention has been

1  described as being particularly applicable to the solution

2  of problems arising in distributing updates of original or

3  previously purchased or delivered electronic information

4  products, those skilled in the art will appreciate that

5  many of the benefits of the invention can be obtained

6  without any initial information content being delivered to

7  the user with the original product.  The user could simply

8  receive the information transporter 14 and all product

9  information could be received subsequently, after installing

10 the information transporter 14, in the form of fetch objects

11 transmitted from a remote server or other suitable source.

12 For example, a newsletter service could provide a disk with

13 the transporter and a user interface, but with no initial

14 information content.

15

16 **Information-on-demand services:**  In another embodiment,

17 providing an information product on demand service, vendors

18 can freely distribute a novel electronic marketing product

19 comprising a transporter on diskette, along with a simple

20 user interface and a catalog of information product items

21 available from the vendor, without including the products

22 themselves.  Such an electronic marketing product could be

23 distributed through the mail, as a magazine insert giveaway,

24 or through any other suitable marketing medium.  The

25 transporter could be activated at any time by the user to

26 call in and fetch a cataloged product, as well as a current

73

1   catalog, possibly after sending a credit card order form, or

2   the product price could be paid to the vendor by obtaining

3   the product from a 900 number providing vendor reimbursement

4   from the telephone network.

5

6   **Open architecture online service access**

7   In a further aspect, the invention provides an information

8   transport component 14 that functions as universal or

9   generic client interface software, enabling a user client to

10   work with any one or more of many online server-based

11   information distribution services.

12

13   Many online information distribution services used to

14   disseminate electronic publications comprise intelligent

15   user interfaces which employ a client component running on a

16   customer's personal computer (PC) to communicate with a

17   central server facility operated by the online service, by

18   means of a proprietary protocol. The client interface

19   packages are proprietary to a particular online service.

20

21   Prospective publishers wishing to offer electronic products

22   online, contract with online service providers to enable

23   customers to use the online service's client software to

24   access the publisher's material and related online

25   communications services (bulletin boards, etc.) on the

26   services' servers. The publisher is limited to using the

74

1   presentation facilities provided by the user interface in

2   the online service's client software.   This limitation

3   impedes migration of publisher offerings and makes it

4   difficult for either a customer or a publisher to swing

5   information transport component 14 access from one service

6   provider to another because each service requires its own

7   software package.

8

9   Third party interface developers cannot contribute to such

10  online interfaces for a publisher without the cooperation of

11  the online service provider which may be difficult or

12  impossible to obtain.   Accordingly, only limited user

13  interfaces with moderate sophistication and variety can be

14  offered.

15

16  Accordingly in another aspect, to provide open architecture

17  online service communication, the inventive information

18  transport component 14 can be embodied as a flexible client

19  interface which can be actuated to operate with any one of a

20  number of online services by providing a generic client

21  interface foundation API (application program interface)

22  combined with a set of translators and protocol drivers

23  capable of communicating the user's functional requests to

24  any one of a set of online services, using their

25  corresponding proprietary protocols.

26

75

1   In this aspect the invention permits publishers to develop

2   highly sophisticated and individualized user interfaces

3   independently of the limitations of the online service

4   providers' capabilities.  Such enhanced user interfaces are

5   attractive to publishers seeking differentiation of their

6   products by providing an appealing individualized interface

7   with a signature look and feel.  In contrast, online service

8   providers seeking to economically carry content from many

9   publishers provide generic interfaces acceptable to all.

10

11  By incorporating operational translators for a number of

12  online service protocols, which translators fully adhere to

13  the detailed specifications of each protocol, a multi-

14  service capability can be provided.

15

16  Online services generally provide similar types of services

17  with nearly standard functions and similar user interfaces.

18  Major service types include bulletin board, chat, electronic

19  mail, document browsing, and database search.  Use of

20  creative typography, layout, graphics, and other artistic

21  elements to offer the presentation quality and variety

22  typical of print media is desired by publishers using this

23  medium.

24

25  The invention facilitates this end by providing open

26  development platforms for development of advanced interfaces

1   while shielding developers from the complex details of

2   communication with an online server.  The shielding is

3   accomplished by providing an API which supports

4   communications service requests at a simple functional

5   request level.

6

7   Referring to Figure 3, multiple targeted online services 80,

8   can be accessed by a client interface 82 comprising any of

9   multiple graphical user interfaces 84 driving a generic API

10   86 which works with plug-in translator/communicator modules

11   88 which are provided to communicate one to each targeted

12   online service 80.  Modules 88 mimic the online service's

13   protocols, so as to be essentially indistinguishable from

14   the proprietary interfaces normally used.  A communications

15   manager 90 receives input from API 86 and outputs through

16   protocol mapper 92 which selects the appropriate protocol.

17

18   In this embodiment, for use with full-function online

19   services, the functions of API 86 and protocol 88 are

20   extended to support extended, open-ended interactive

21   sessions and the more varied client-server interaction needs

22   of session-oriented interactive online applications such as

23   bulletin board posting and browsing, online chat, electronic

24   mail, database and menu browsing, and database search.

25

26   Similarly, in the aspect shown in Figure 3, the invention

1    can be provided with the same kind of additional flexibility

2    with regard to the user's connection to server 22 as the

3    invention can provide for more basic fetch and send

4    functions.  While the inventive client server protocol 38

5    and 44 is particularly suited to the functions described,

6    other existing or future services and corresponding

7    protocols could be used, if necessary with adaptation, to

8    provide workable services for use in conjunction with

9    transport component 14.  Such use may require modification

10   of communications module 36 and protocol 38 by the addition

11   of a protocol mapper 92 and appropriate server protocol

12   plug-in 88 to communicate to an alternative server.

13

14   In either case, such added flexibility in use of the

15   inventive product increases a publisher's choices in

16   selecting server and network facilities through which to

17   distribute information products, and enables the publisher

18   to offer fully customized user interfaces for use with

19   multiple, or any one of multiple server and network services

20   which do not provide for such customization.  In this

21   embodiment of the inventive transport component, a

22   containing product can offer a unique custom interface and

23   provide for access to additional information products from

24   such varied source facilities as the Internet, full function

25   online services, emerging groupware network services,

26   conventional bulletin board systems, and future network

78

1 services using wireless or cable television technology.

2

3 While the invention can provide a flexible, generic API, in

4 some circumstances, an existing third-party API designed for

5 use with a single specific online service can be combined

6 with an embedded transporter and server protocol mapper to

7 allow products designed to use the third-party API to employ

8 any of multiple servers for distribution, avoiding

9 commercial distribution restraints associated with that API,

10 for example use of a particular server.

11

12 The inventive protocol mapper 92 can insulate a containing

13 information product from the variations among such services,

14 and can allow a single such information product to be

15 transported through a variety of such services, and to later

16 be moved to other such services by simply selecting an

17 alternative protocol mapper.  Multiple such protocol mappers

18 can be packaged within a given information product to permit

19 alternatives to be selected by the end-user from a list.

20 Thus the invention further permits information products and

21 related UI/DB authoring tools to be service-independent and

22 neutral.

23

24 Figure 4 provides an overview of the use of the inventive

25 client interface accessing multiple publications via

26 multiple remote online services, as well as multiple locally

79

1 mounted data sources and storing additional retrieved data

2 locally.

3

4 Enhancements can enable a publisher's service to provide

5 integrated, seamless access to content distributed over

6 several different online services; to seamlessly combine

7 access to both online and local CD-ROM-based content; and to

8 coexist with and share resources with other publishers'

9 services on the user's PC.

10

11 In summary, the invention provides, in this aspect, a

12 simple, easy-to-use multi-protocol capability that enables

13 an electronic information object to be transported from a

14 publisher to a wide base of users by any one of a number of

15 online services, without sacrificing individual product

16 identity.

17

18 **Recursive updating of the transporter**

19 Another application of the inventive information transport

20 product, or transporter, is a recursive use to update

21 itself, in the same manner that the transporter can update a

22 containing information product. This method can be useful

23 in a variety of ways, including to upgrade the transporter

24 by the addition of new protocol components, new compression

25 techniques, or new network access methods.

26

1    An important class of such self-updates is to provide added

2    flexibility in specifying network access procedures.  For

3    example, the user setup routine could be extended into a two

4    stage process.  In a first stage, each user's transporter

5    calls in to a common pre-set phone number, in order to fetch

6    a second phone number selected according to the user's

7    particular product, location, or some other parameter.  The

8    second phone number, or other address, can then placed in

9    the setup as an update, to be used in subsequent transport

10    operations.

11

12    This two-stage method can provide efficient use of a single

13    pre-set toll-free 800 number for an initial call from any

14    number of different products, which initial call yields a

15    second number corresponding to a specific Product ID, which

16    number is used for subsequent calls.

17

18    In an advantageous embodiment, the second number is not toll

19    free and may include vendor charges, in the manner of a 900

20    number.  This arrangement enables a system in which users do

21    not pay for initial setup calls (and any failed connections

22    which might result from initial setup problems), but do pay

23    long-distance toll charges, and per call vendor fees if the

24    publisher so desires, for subsequent product information

25    transport from the second number.  This two-number process

26    can be carried out without requiring any phone number entry

1   or selection by the user. Additionally, the second number

2   can readily be changed whenever desired by the publisher,

3   even after product discs have been shipped.

4

5   **User's station**

6   References herein to a user's station, workstation, computer

7   or terminal will be understood to embrace any "information

8   appliance" or intelligent device having the basic computer-

9   like functions of programmed logic, storage and

10   presentation, or having the ability to support an operating

11   system for managing user input-output with a processor,

12   including intelligent cable television controllers, video

13   game players, information kiosks, wired and wireless

14   personal communicators, and even system controllers such as

15   automotive computers.

16

17   **Benefits provided by the invention**

18   Employing the novel information transport component 14

19   interacting with remote server 22 through communications

20   protocols 38 and 44, the invention enables the following

21   advantageous objectives and other benefits to be achieved:

22       i)     simple and easy execution of one or more fetch or

23            send transactions to or from a remote server, by

24            an ordinary, unskilled user with no human

25            interaction at either end being necessary after

26            initiation;

1   ii) automated transport of predefined information

2     objects between client and server in a closed-

3     ended fashion, without burdening a client-based

4     user with complex routing logic; and

5   iii) creation of an economic, easy-to-use, function-

6     specific, self-contained information transport

7     component 14 software module suitable for mass

8     distribution in a containing information product.

9

10 The preferred use of an object manifest in a transport

11 control mechanism which includes transporting the object

12 manifest between client user and server, and referencing the

13 object manifest by user fetch-send protocol 38 and server

14 fetch-send protocol 44 facilitates achievement of the

15 following additional objectives:

16   iv) simple, tight-knit control of the communication

17     process and of error handling; and

18   v) creation of a transport control mechanism, and

19     thence of an information transport component 14,

20     which operates smoothly and transparently to the

21     user and independently of the information object

22     content or of the nature of the application.

23

24 The invention thus provides an information transport

25 software component which can be employed to transport a wide

26 variety of data objects or applications and can be easily

1    incorporated in many different information products to

2    provide multiple novel containing information products 12

3    with built-in automated updatability or upgradability

4    executable at an appropriate time by simple, user-menu

5    selection or automatically.

6

7    **Further benefits**

8    In addition to the benefits of a powerful and efficient

9    information transport method, use of a standard, formalized

10   transporter, its API, and client-server protocol, pursuant

11   to the teachings of the invention disclosed herein, can

12   provide any or all of the following significant benefits to

13   users, information product vendors, application vendors,

14   service providers, tool vendors or others:

15

16       vi) use of a standardized facility to perform a well-

17           defined function in a known way (with available

18           implementations for a varied and expanding set of

19           hardware and software platforms);

20       vii) reliance on a standardized facility that can be

21           extensively tested and proven reliable across a

22           wide variety of equipment and conditions;

23       viii) reduced need for information product developers

24           (and users, and user interface/database search

25           software vendors) to know and understand the

26           complexities (and rapid evolution) of data

1    communications;

2    ix) ability to build a single functional interface

3         that can smoothly employ a dynamically expanding

4         variety of communications facilities and

5         technologies;

6    x) ability to obtain operations and user support

7         services relating to the difficult task of

8         managing a server and its communications with

9         large numbers of end-users;

10   xi) user-recognition of the novel information

11        transport facility across a range of unrelated

12        products, establishing a positive brand cachet

13        benefiting users and vendors alike;

14   xii) ability to package the transporter facility with

15        other tools, such as a UI(user interface) and

16        database search capability to extend the value of

17        those tools economically and with the ability to

18        gain the benefits described above; and

19   xiii) control of communications costs and failures by

20        elimation of human intervention, with its

21        attendant time-consuming delays and errors, from

22        the period during which the user's station is

23        connected in real time communication with remote

24        server 22.

25

26   Stated succinctly, by having the novel information transport

1   component rely entirely on a containing information product

2   for all user interface and information presentation

3   functions, there need be no restrictions on the creativity

4   of the containing product imposed by the needs of a third

5   party communications product. Thus the containing

6   information product can present transport functions with any

7   desired look and feel.

8

9   Another advantage of the information transport system of the

10   invention is the avoidance of difficult or complex

11   navigation tasks, and the use of simple direct dial

12   communications which are suitable for sessions that are

13   short and infrequent. The inventive information transport

14   products described herein are consistent with or readily

15   adaptable to the needs of many publishers of a diversity of

16   materials, which needs are commonly centered on discrete

17   products and content.

18

19   A further advantage of the invention, from the point of view

20   of publishers, is that because the call is customer

21   initiated, the customer pays transport costs (telephone line

22   charges), simplifying costing for the publisher who avoids

23   having to figure shipment or other transportation costs

24   before sale and build these costs into the price of the

25   product or update.

26

1    The inventive approach to mass distribution of electronic

2    information products described herein can also provide

3    advantages in high-value environments such as those of

4    Counterpoint Publishing's Federal Register products cited

5    hereinabove, providing a more seamless integration of the

6    fetching of updates received via modem (and selected and

7    extracted by the user from the "Daily Federal Register")

8    with the original product on CD-ROM, the "CD Federal

9    Register".  Product installation can be simplified, and a

10   separate user invocation of, and interface to, a general-

11   purpose communications package can be avoided.  In addition,

12   by employing the user's pre-existing modem and avoiding need

13   for a general purpose communications product license,

14   significant cost savings can be obtained.

15

16   The better to comprehend its possible applications and

17   enhancements, embodiments of the invention can be grouped in

18   four levels, as a follows.

19

20   **Level zero**  A novel basic transport function embeddable in

21   any of a range of electronic information products to provide

22   economical unattended updates.

23

24   **Level One**  Basic transporter 14 incorporating API's 40 and

25   42 adds a powerful new capability to be used with an

26   electronic information product's custom user interface

*and*

1  *and* ~~optionally enhanced with a~~ database management facility for

2  seamless integration of an update with an original product.

3  Other options can integrate with rel*e*vant third-party

4  packages such as authoring packages.

5

6  **Level One (Server enhanced)**  Adds server operation and user

7  support features enabling publishers to outsource tasks

8  which may be difficult or unfamiliar to them.

9

10  **Level Two**  Adds optional translation or use of alternative

11  server protocols enabling an embeddable transpo*t*er product

12  to work with many different servers or services including,

13  for example, standard BBS's, Internet servers, and special

14  transport services such as those offered or proposed by

15  communications providers such as AT&T, MCI, Compuserve,

16  America Online and cable television systems.

17

18  **Level Three**  Adds a full online service user interface API

19  with correspondingly enhanced client-server protocols to

20  provide for full-function online service sessions with user

21  interface control *and with* ability to work with a range of online

22  services, providing a publisher with flexibility in their

23  use of existing and emerging services.

24

25  While an illustrative embodiment of the invention has been

26  described above, it is, of course, understood that various

1    modifications will be apparent to those of ordinary skill in

2    the art.   Such modifications are within the spirit and scope

3    of the invention, which is limited and defined only by the

4    appended claims.

## Claims

1  **Claim 1.**  A computer-implemented information transport

2  software component separately suppliable for use with any

3  one of multiple electronic information products for mass

4  distribution of electronic information objects to users of a

5  diversity of uncoordinated communications-equipped computer

6  stations by enabling said users to fetch an electronic

7  information object from an object source specified with said

8  information product, in an online fetch operation proceeding

9  in unattended mode after activation, said information

10  transport software component being adaptable to each said

11  multiple information product to have a user interface in

12  said information product for activation of unattended

13  transport of an information object from a remote object

14  source to a user's computer station, said user's station

15  being in real time communication with said remote object

16  source, wherein said information transport component

17  contains a user communications module having user protocols

18  specifying user station functions of said unattended object

19  transport and said remote object source is supplied with a

20  source communications module having source protocols

21  specifying source functions of said information object

22  transport, said user protocols being co-operative with and

23  known to said source protocol to effect said unattended

24  object transport automatically after initiation at said user

25  station.

1   **Claim 2.**   An information transport component according to

2   claim 1 comprising object send means for unattended

3   transport of a send object from said user's station to said

4   remote object source.


1   **Claim 3.**   An information transport component according to

2   claim 1 wherein said object send means comprise a user-

3   activatable selection in said user interface, and send

4   specifications in said user and source protocols.


1   **Claim 4.**   An information transport component according to

2   claim 1 wherein said user communications protocols specify a

3   remote object source address and wherein object parameters

4   selected from the group consisting of a file name, file

5   names, file size, file location, file content and file

6   format are specified in said communications protocols and

7   said source communications protocols.


1   **Claim 5.**   An information transport component according to

2   claim 1 wherein said object specification is listed in an

3   object manifest stored at said user's station.


1   **Claim 6.**   An information transport component according to

2   claim 5 wherein said object manifest is sent to said remote

3   object source as a verifier to assist control of said

4   transport operation.

1 **Claim 7.** An information transport component according to

2 claim 1, comprising a high-level functional interface

3 permitting said information product to remain unaware of and

4 uninvolved in the technical and operational details of the

5 communications process.


1 **Claim 8.** An information transport component according to

2 claim 1, wherein said electronic information product

3 provides user interface and information presentation

4 functions for said information object transport whereby said

5 information product can provide information transport

6 functions with any desired look and feel unconstrained by a

7 communications module.


1 **Claim 9.** An information transport component according to

2 claim 1 wherein said fetched information object is pre-

3 identified and integratable with said information product to

4 which said transport component is customized to provide an

5 augmented information product.


1 **Claim 10.** An information transport component according to

2 claim 9 wherein said information transport component

3 comprises:

4         a)      a fetcher module configured to fetch said pre-

5                 identified object from said object source

6

1                   employing a pre-specified common carrier address

2                   stored in said fetcher module;

3      b)    a communications manager to establish and manage

4                   connection to said object source under control of

5                   said fetcher module and with said assistance of

6                   said user and source communications protocols; and

7      c)    a fetched object integrator to locate a fetched

8                   object in a preset file area accessible to and

9                   known to said containing information product;

10  wherein said object pre-identification, said common carrier

11  address and said preset file area specifications are stored

12  in said software component, whereby a workstation user of

13  said information product can automatically effect transport

14  and integration of a pre-identified object from said object

15  source to create an augmented information product at said

16  workstation.


1  **Claim 11.** An information transport component according to

2  claim 1 wherein said information transport component

3  performs a containerized, standard transport operation, said

4  transport operation being transparent to any high-level

5  formatting of said transported information object, and

6  essentially repeatable for a wide variety of different

7  information objects.

1    **Claim 12.** An information transport component according to

2    claim 1 having means to pack or unpack, compress or

3    decompress, and send files to or fetch files from specified

4    locations.


1    **Claim 13.** An information transport component according to

2    claim 1 wherein said transporter allows said containing

3    information product to be set up automatically to effect

4    high-level integration of indexes and navigational

5    structures by letting said containing product have control

6    to import or export or to encrypt or decrypt objects.


1    **Claim 14.** An information transport component according to

2    claim 1 wherein said novel electronic information

3    transporter is seamlessly embedded in said containing

4    product and is separable from said containing product to be

5    usable with other containing products.


1    **Claim 15.** An information transport component according to

2    claim 1 wherein said communications module is self-

3    configuring and includes a workstation surveyor providing

4    workstation configuration parameters.


1    **Claim 16.** An information transport component according to

2    claim 1, wherein said information transport component

3    provides protocol selection means for selecting media for

1    real time communication between said user and said remote

2    object source employing a selection from a set of open-ended

3    network technologies and network providers, said

4    communication means being selectable without substantive

5    change to said information product.

1    **Claim 17.** An information transport component according to

2    claim 1 wherein said remote object source comprises a remote

3    server capable of establishing real time communication with

4    said information transport component for object transport.

1    **Claim 18.** A information transport component according to

2    claim 1 wherein said information product is a collection of

3    issues of a periodical publication and said pre-identified

4    object comprises an update issue.

1    **Claim 19.** An information transport component according to

2    claim 1 wherein said information product is a software

3    application and said pre-identified object comprises an

4    upgrade for said software application.

1    **Claim 20.** An information transport component according to

2    claim 1 supplied as a free-standing embeddable component for

3    incorporation in an information product said information

4    transport component comprising only such functionality as is

    required for said information object transport operation.

1    **Claim 21.** An information transport component according to

2    claim 1 wherein said real time communication has a software-

3    controlled duration confined to a period sufficient  to

     effect said unattended object transfer.


1    **Claim 22.** A computer-implemented electronic information

2    product comprising information content and an information

3    transport component according to claim 1.


1    **Claim 23.** A computer-implemented information transport

2    software component separately suppliable for use with any

3    one of multiple electronic information products for mass

4    distribution of electronic information objects from users of

5    a diversity of uncoordinated communications-equipped

6    computer stations by enabling said users to send an

7    electronic information object to a remote center specified

8    with said information product, in an online send operation

9    proceeding in unattended mode after activation, said

10   information transport software component being readily

11   customized to an individual information product to have a

12   user interface in said information product for activation of

13   unattended transport of an information object from said

14   user's computer station to said remote center, said user's

15   station being in real time communication with said remote

16   sender wherein said information transport component contains

17   a user communications module having user protocols

1    specifying user station functions of said unattended object

2    transport and said remote center is supplied with a remote

3    center communications module having remote center protocols

4    specifying remote center functions of said information

5    object transport, said user protocols being co-operative

6    with and known to said remote center protocols to effect

7    said unattended object transport automatically after

8    initiation at said user station.


1    **Claim 24.** An information transport component according to

2    claim 23 wherein said electronic information product

3    comprises a merchant's product disclosure and said send

4    object comprises a user's order electronically prepared from

5    said product disclosure whereby said order can be placed

6    with said remote center electronically in unattended mode

7    without requiring a voice call.


1    **Claim 25.** A computer-implementable electronic information

2    transporter supplied as a free-standing embeddable component

3    for incorporation in an information product for transporting

4    information objects related to said information product,

5    between a widespread base of users of a diversity of

6    computer stations and a specified remote center, said

7    transporter comprising:

8         a)    a user interface in said information product for

9               activation of unattended transport of at least one

1         said information object; and

2   b)     a user communications module cooperative with and

3         known to a remote center communications module

4         said user and remote center communications modules

5         effecting unattended online transport of said

6         information objects after activation;

7 wherein said information transport component comprises only

8 such functionality as is required for said transport of said

9 information objects.

**Claim 26.** A transporter according to claim 25 operative to
provide unattended information object transport only between
an aforesaid user and at least one remote address, said at
least one address being pre-specified to the transporter and
including an address for said remote center.

**Claim 27.** An electronic information product distribution
remote server for use in transporting information objects to
multiple information transport components according to claim
1 located at said remote center and being supplied with said
source communications protocols.

**Claim 28.** A distribution server according to claim 27 in
combination with a link to a remote vendor, whereby said
users can transport objects to or from said vendor via said
distribution server.

1   **Claim 29.** A distribution server according to claim 27 said

2   server being gatewayed to other information object sources.


1   **Claim 30.** A method of distributing predetermined electronic

2   information objects from a remote object source to users of

3   a diversity of uncoordinated communications-equipped

4   computer stations, said method comprising:

5         a)    supplying said users with a separable information

6              transport component containing user communications

7              protocols specifying user station functions of a

8              specified object transport operation; and

9         b)    supplying said remote object source with a source

10             information object and source communications

11             protocols specifying source functions of said

12             unattended object transport operation, said source

13             communications protocol being co-operative with

14             said user communications protocol to effect said

15             pre-specified information object transport

16             operation;

17   whereby said transport operation can proceed in unattended

18   mode after initiation at said user's station.


1   **Claim 31.** A method according to claim 30 wherein after setup

2   of a containing information product and a simple menu-

3   selection activation of a transport operation said

4   information transport component effects said transport

1 operation in an unattended manner, without user

2 intervention, through steps of modem activation, dialing,

3 handshaking with said object source, file specification,

4 file importation, termination of said call and return of

5 control to said containing product.

6

7 **Claim 32.** A method according to claim 30 comprising

8 additional steps of sending back verification of receipt of

9 said fetched file to said object source, inspection of said

10 fetched object and comparison with a pre-existing manifest

11 for verification of object parameters, any necessary

12 unpacking and decompression being effected automatically, in

13 an unattended manner without user intervention.


1 **Claim 33.** A method according to claim 30 wherein additional

2 steps of application file specifying, location or relocation

3 of an object file or files, indexing, reindexing, index

4 creation or use or hypertext or other product integration

5 function that is required to enable said user to utilize

6 said fetched object harmoniously with said original

7 information product, be performed automatically in

8 unattended manner without user intervention.

## DECLARATION FOR SINGLE INVENTOR
## FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled "COMPUTER-IMPLEMENTED TRANSPORT OF ELECTRONIC INFORMATION OBJECTS"
", the specification of which is attached hereto unless the following box is checked:

[ ] was filed on _____ as United States Application Number or PCT International Application Number _____
and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56. I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

| | | Filed | Priority Claimed |
|---|---|---|---|
| _____ (Number) | _____ (Country) | _____ (Day/Month/Year) | [ ]Yes [ ]No |
| _____ (Number) | _____ (Country) | _____ (Day/Month/Year) | [ ]Yes [ ]No |
| _____ (Number) | _____ (Country) | _____ (Day/Month/Year) | [ ]Yes [ ]No |

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

| (Application Number) | (Filing Date) | (Status[1]) |
| --- | --- | --- |

| (Application Number) | (Filing Date) | (Status) |
| --- | --- | --- |

I hereby appoint Anthony H. Handal, Reg. No. 26,275; Ernest Gergely, Reg. No. 25,584; and John Andres, Reg. No. 30,921 as my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Address all telephone calls to Anthony H. Handal at
                                           (203) 838-8589
Address all correspondence to: Anthony H. Handal
                                           Handal & Morofsky
                                           80 Washington Street
                                           Norwalk, Connecticut 06854
                                           Facsimile (203) 838-8794

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of sole inventor (given name, family name) Richard R. REISMAN

Inventor's signature _____ Date 5/27/94

Residence 20 East 9th Street #14K, New York, New York 10003

Citizenship United States of America

P.O. Address 20 East 9th Street #14K, New York, New York 10003

[ ] Additional inventors are being named on separately numbered sheets attached hereto.

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[1]. Please specify patented, pending or abandoned.

Applicant or Patentee: RICHARD R. REISMAN
Serial No.: __Unknown__
Attorney's Docket No.: __REISMAN__
Filed: __Herewith__
For: __"COMPUTER-IMPLEMENTED TRANSPORT OF ELECTRONIC INFORMATION OBJECTS"__

### VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b))-INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled "COMPUTER-IMPLEMENTED TRANSPORT OF ELECTRONIC INFORMATION OBJECTS" described in

    [X] the specification filed herewith
    [ ] application Serial No._____, filed_____.
    [ ] patent No._____, issued_____.

I have not assigned, granted, conveyed, or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

    [X] no such person, concern, or organization
    [ ] persons, concerns or organizations listed below

    *NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME _____
ADDRESS _____
    [ ] INDIVIDUAL    [ ] SMALL BUSINESS CONCERN    [ ] NONPROFIT ORGANIZATION

FULL NAME _____
ADDRESS _____
    [ ] INDIVIDUAL    [ ] SMALL BUSINESS CONCERN    [ ] NONPROFIT ORGANIZATION

    I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

    I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

| __Richard R. REISMAN__ | Name of Inventor | Name of Inventor |
|---|---|---|
| Name of Inventor | | |
| _signature_ | | |
| Signature of Inventor | Signature of Inventor | Signature of Inventor |
| 5/27/94 | | |
| Date | Date | Date |